PREVENTING CARDIOVASCULAR EVENTS IN PERSONS AT RISK or WITH ESTABLISHED CV DISEASE[1-14]

Wisconsin Collaborative for Cardiovascular Risk Reduction Initiative 2004

***Adapted from the AHA/ACC Scientific Statements & Guidelines listed in the references.

CVD RISK FACTORS	CRITERIA FOR RISK	Lifestyle Modifications	Clinical Management Interventions	GOALS
Dyslipidemia **1, 2, 3, 5, 6, 7, 9, 10**	**Screening for Lipid Risk Factors** **High Total Cholesterol** ♦ **Borderline High:** ≥ 200-239 mg/dL ♦ **High:** ≥ 240 mg/dL **High LDL[1]:** Primary target for lipid-lowering therapy. ♦ **Very High**: ≥ 190 mg/dL and above. ♦ **High**: ≥ 160-189 mg/dL ♦ **Borderline High**: ≥130-159 mg/dL ♦ **Above Optimal**: ≥ 100-129 mg/dL **High Triglycerides (TG)[1, 2, 3, 6]** ♦ **Very High**: ≥ 500 mg/dL ♦ **High:** 200-499 mg/dL ♦ **Borderline high**: 150-199 mg/dL **Low HDL** ♦ < 40 mg/dL for men ♦ < 50 mg/dL for women[6]	**Recommendations** ♦ Encourage weight loss/management. ♦ Limit diet to <7% saturated fats and < 200 mg/dL of cholesterol from total calories. ♦ Increase consumption of monounsaturated fatty acids (olive/peanut/ canola oils, nuts/peanut butter, avocado, olives). ♦ Suggest plant stanols/sterols (2/day) to lower cholesterol. ♦ Include 6 oz. of fish/wk, specifying tuna, herring or salmon. ♦ Medical nutrition therapy and/or other education as indicated. ♦ Promote and/or increase daily physical activity.	**Initial Assessment**: ♦ Assess fasting lipid panel (FLP) for baseline. **LDL is primary focus.** ♦ If LDL-C cannot be calculated due to elevated triglyceride level, order LDL-C direct measurement[7]. ♦ FLP within 24 hours of hospitalization for an acute event and re-check FLP in 12 weeks. ♦ Periodically re-check FLP thereafter until goal values are met. **High LDL Therapy Options**: ♦ Evaluate for 10 year CVD risk[3]. ♦ Start with lipid lowering agent – statin preferred. (If patients are hospitalized, start statin). ♦ **If LDL is ≥ 130 mg/dL (baseline or on treatment)** start or intensify lipid lowering therapy to reach goal (statin preferred). ♦ **If LDL 100- 129 mg/dL (baseline or on treatment):** ♦ Start lipid lowering therapy (statin preferred). ♦ Consider combined drug therapy (statin + fibrate or niacin if low HDL or high TG). ♦ **If LDL is < 100 mg/dL (baseline or on treatment)**: lipid lowering therapy not required. **High Triglycerides Treatment Options:** ♦ **If TG ≥ 500 mg/dL:** ♦ Treat TG first to prevent pancreatitis. ♦ Initiate/resume lipid-lowering therapy (statin preferred). ♦ **If TG 200-499mg/dL:** ♦ **Start fibrate or niacin.** **Low HDL Therapy Options:** ♦ If HDL < 40 mg/dL for men or < 50 mg/dL for women: ♦ First attain LDL goal. ♦ Then, intensify weight management and physical activity.	**Total Cholesterol Desired** < 200 mg/dL **LDL Desired** < 100mg/dL **Triglycerides Desired** < 150 mg/dL **HDL Desired** ≥ 40 mg/dL for men ≥ 50 mg/dL optimal for women[6] ≥ 60 is a negative risk factor
***High Blood Pressure** **4, 6, 10, 13** **Accurate blood pressure measurement is essential*	**Screening for Hypertension** ♦ **Prehypertension:** ≥ 120-139/ or ≥ 80-89 mmHg ♦ **Hypertension Stage I:** ≥ 140-159/ or ≥ 90-99 mmHg ♦ **Hypertension Stage II:** ≥ 160/ or ≥ 100 mmHg	**Recommendations** ♦ Encourage weight loss/maintenance. ♦ Low sodium diet- 1500 to 2400 mg/day[13]. ♦ DASH Diet[13]- low sodium, high fruits & vegetables, high calcium, low alcohol. ♦ Medical nutrition therapy and/or other education as indicated. ♦ Promote and/or increase daily physical activity.	**Initial Therapy Options for Stage 1 Hypertension:** ♦ THIAZ, BB, ACEI, ARB, CCB, or combination. **Therapy Options for Stage 2 Hypertension:** ♦ 2 or more drug combination for most –THIAZ and ACEI, or ARB, or BB, or CCB. **Therapy for Comorbid Conditions:** ♦ **Heart failure -** THIAZ, ACEI, ARB, BB, ALDO ANT. ♦ **Post MI -** BB, ACEI. ♦ **High CVD risk -** THIAZ, BB, ACEI, CCB. ♦ **Diabetes -** ACEI, ARB, THIAZ, BB, CCB. ♦ **Chronic renal disease -** ACEI, ARB. ♦ **Recurrent stroke prevention -** THIAZ, ACEI. **Key: THIAZ = thiazide diuretic, ACEI - angiotensin converting enzyme inhibitor, ARB = angiotensin receptor blocker, BB = beta-blocker, CCB = calcium channel blocker, ALDO ANT = aldosterone antagonist.**	**Blood Pressure Control: Desired** <120 /and < 80 mmHg **HTN Treatment Goal**: Achieve at least <140/<90 mmHg **Comorbidities:** HTN + diabetes **and/or** kidney disease goal - <130/<80 mmHg

Note: This practitioner's tool was developed to provide guidance to providers and is not intended to replace or preclude clinical judgment.

Wisconsin Department of Health & Family Services, Division of Public Health, Bureau of Community Health and Prevention - PPH 43073.
Download tool from the Cardiovascular Health Program's website: http://dhfs.wisconsin.gov/Health/cardiovascular/index.htm

RISK FACTORS	CRITERIA FOR RISK	Lifestyle Modifications	Clinical Management Interventions	GOALS
Metabolic Syndrome **1, 2, 3, 4, 5, 6, 8, 10,14**	**Any Three (3) of the Following:** ♦ Central Obesity - waist circumference **> 40 inches for men > 35 inches for women**. ♦ Triglycerides ≥ 150 mg/dL ♦ FPG ≥ 100 mg/dL - < 126 mg/dL ♦ Elevated BP ≥ 130/≥ 85 mm Hg ♦ HDL < 40 mg/dL for men. ♦ HDL < 50 mg/dL for women.	**Recommendations** ♦ Encourage weight loss/maintenance. ♦ Medical nutrition therapy and/or other education as indicated. ♦ Promote and/or increase daily physical activity.	**Therapy Options**: ♦ Clinical management of dyslipidemia to **Dyslipidemia Goals**. ♦ Lowering blood pressure to **BP control goal**. ♦ Reduction of insulin resistance through achievement of **Obesity and Physical Activity Goals**. ♦ Start and continue with Aspirin (ASA) 75-325mg unless contraindicated. *The evidence that ASA and other antiplatelet therapy can reduce risk is compelling and suggests a role for platelet hyperaggregability.*	**Improved Metabolic Risk Factors**
Diabetes **1, 2, 3, 4, 6, 10, 11, 12**	Diabetes is regarded as a CHD risk equivalent with or without the presence of clinical atherosclerotic disease[3, 4].	**Recommendations** ♦ Encourage weight loss/maintenance. ♦ Medical nutrition therapy and diabetes education. ♦ Promote and/or increase daily physical activity.	**Therapy Options:** ♦ **Single therapy options**: Insulin secretagogues, biguanides, thiazolidinediones (TZD's), alpha glucosidase inhibitors, Insulin, as dictated by A1C. ♦ **Combination Therapy**: as dictated by A1C. Add oral agent(s) and/or insulin. Substitute or intensify insulin regime as needed. **Additional Considerations for Treatment/Monitoring**: ♦ Lowering blood pressure[4]. ♦ Managing dyslipidemia [3]. ♦ ASA or other antiplatelet agent. ♦ Monitor kidney function with albumin/creatinine ratio[11].	**A1C < 7.0%** **Blood Pressure: < 130/ < 80 mm Hg** **Lipids in Desired Range**
Obesity **1, 2, 4, 6, 9, 10**	♦ **Overweight:** BMI ≥ 25 - 29.9 kg/m^2 ♦ **Stage I Obesity:** BMI ≥ 30 - 34.9 kg/m^2 ♦ **Stage II Obesity** BMI ≥ 35-39.9 kg/m^2 ♦ **Stage III Obesity:** BMI ≥ 40 kg/m^2	**Recommendations** ♦ Encourage weight loss/maintenance. ♦ Medical nutrition therapy and/or other education as indicated. ♦ Promote and/or increase daily physical activity.	**Therapy Options:** ♦ Measure height and weight. ♦ Calculate BMI: BMI = kg/m^2 or wt. in pounds x 704.5 ÷ ht. in inches^2. ♦ Assess for impaired fasting glucose: fasting plasma glucose (FPG) ≥ 100 - < 126 mg/dL. ♦ **Assess for comorbidities and treat**. ♦ Assess for other associated diseases: gynecological abnormalities, osteoarthritis, gallstones.	**Weight loss: 5-7% of body weight or BMI of < 25 kg/m^2**
Physical Inactivity **1, 2, 3, 6, 4, 10**	♦ Inactivity is defined as: < 30 minutes of moderate physical activity 5 times or more per week.	**Recommendations** ♦ Promote and/or increase daily physical activity.	**Therapy Options:** ♦ Evaluate for sedentary lifestyle and occupational level of activity. ♦ Promote physical activity. ♦ Prescribe appropriate activities and/or refer moderate to high-risk patients to medically supervised activity programs. ♦ Re-assess at every visit.	**At least 30 minutes of moderate physical activity daily.**
Tobacco Use **1, 2, 6**	♦ Cigarette smoking. ♦ Pipe smoking. ♦ Chewing tobacco. ♦ Environmental exposure.	**Recommendations** ♦ Tobacco cessation. ♦ Reduce environmental exposure.	**Therapy Options:** ♦ Assess history of tobacco use or environmental exposure. ♦ Provide information on smoking cessation programs. ♦ Encourage non-prescription and/or prescription cessation products. ♦ Refer for support/counseling, e.g., stress reduction, nutrition education. ♦ Re-assess every visit. ***Wisconsin Quit Line: 1-877-270-STOP (7867) (español: 1-877-2NO-FUME)***	**Tobacco Cessation**
Family History **3, 4, 6**	♦ First degree relative with early-onset atherosclerotic CVD, < 55 years in men and < 65 years in women.	**Recommendations** ♦ Medical nutrition therapy and/or other education as indicated. ♦ Promote and/or increase physical activity.	**Therapy Options:** ♦ Obtain family history of CVD and provide family counseling as appropriate. ♦ Evaluate for 10 year CVD risk[3]. ♦ **Treat modifiable risk factors**: hypertension, diabetes, dyslipidemia, metabolic syndrome, established coronary heart disease, sleep apnea.	**Lifestyle Changes** **Control of Modifiable Risk Factors**

1.** *AHA/ACC Guidelines for Preventing Heart Attack and Death in Patients With Atherosclerotic Cardiovascular Disease: 2001 Update.* **2.** *AHA Guidelines for Primary Prevention of Cardiovascular Disease and Stroke: 2002 Update.* **3.** *ATP lll,** NIH Pub. # 02-5215, September 2002. **4.** *JNC 7*, NIH Pub # 03-5233, May 2003, cites diabetes as a CHD risk equivalent with or without the presence of clinical atherosclerotic disease. **5.** Triglyceride values exceeding 400mg/dL are generally considered too high to calculate LDL-C, but laboratory thresholds may vary. *ATP III*, pg. III-6. **6.** *AHA Evidence-Based Guidelines for Cardiovascular Disease Prevention in Women*, February 2004. **7.** Non-HDL cholesterol = total cholesterol minus HDL cholesterol. *ATP III*, pg. II-7. **8.** The presence of metabolic syndrome accentuates the risk accompanying elevated LDL cholesterol. Modification of atherogenic dyslipidemia, hypertension and the prothrombotic state will reduce the risk for CHD. *ATP III*, pg. II-26. **9.** *NHLBI Practical Guide to Obesity*, Oct. 2000. **10.** *Physical Activity Fundamental to Preventing Disease*, HHS, June 2002. **11.** *Essential Diabetes Mellitus Care Guidelines*, WI Diabetes Advisory Group, April 2001. **12.** *Medical Management of DM: The AACE System of Intensive Diabetes Self-Management, 2002 Update*, Endocrine Practice, (Suppl. 1), January-February 2002. **13.** *Facts About the DASH Eating Plan,* NIH Pub # 03-4082, Updated May 2003. **14.** *AHA/NHLBI/ADA Conference Proceedings: Clinical Management of Metabolic Syndrome*, Circulation, January 2004.